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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/692,831

10/24/2003

Satoshi Nakagawa

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02/08/2006

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EXAMINER

HODGES, MATTHEW P

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 02/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/692,831	Applicant(s) NAKAGAWA ET AL.	
	Examiner Matt P. Hodges	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 15-27 is/are pending in the application.
- 4a) Of the above claim(s) 19-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 15-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/28/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

The Amendment, filed on 11/28/2005, has been entered and acknowledged by the Examiner.

Cancellation of claim 14 has been entered.

Election/Restrictions

Newly submitted claims 19-27 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

This application contains claims directed to the following patentably distinct species of the claimed invention:

Group I, original filed claims, an organic EL device including a specific cathode

Group II, newly added claims 19-27, an organic EL device including an organic layer with two light emitting layers (one including a phosphorescent material and one including a fluorescent material)

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claims are generic.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after

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the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 19-27 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Further applicant is reminded to include where support for the proposed claims resides in the specification, as it is unclear to the examiner upon first reading if the claims are in fact drawn to matter previously disclosed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 1-9, 11, 12, 13, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seo et al. (US 2003/0062826 A1) in view of Suzuki et al. (US 6,447,934).

Regarding claims 1, 9, and 11, Seo discloses (see figure 5) an organic EL device including a substrate, an anode (501), an organic layer (502) formed on the anode and including a light emitting layer (504), and a cathode (505) formed on the organic layer. The cathode further includes an electron injecting layer and a metal film covering the electron injecting layer. The electron injecting layer is constructed of Cesium while the metal thin film is made of Aluminum. (Paragraphs 0110-0113). Seo does not appear to specify the use of stacked light emitting layers, however Suzuki, in the same field of endeavor, discloses the use of two organic light emitting layers stacked in cross section on the device. The use of two light emitting layers advantageously allows for the tuning of the output light to specific frequency bands therefor allowing for better chromaticity in the device. (Column 10 Lines 37-55). Further Seo alternatively discloses the use of the organic EL device as a white text display. (Paragraph 0245). In this case Suzuki additionally discloses the use of stacked organic light emitting layers to emit white light without the need for separate red, green, and blue emitters thus reducing complexity and cost. (Column 10 Lines 37-55). Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the stacked organic layers as taught by Suzuki into the device as disclosed by Seo in order to advantageously allow for better chromaticity and reduce complexity in the device.

Regarding claims 2 and 3, the very low resistivity of Cs and Al in the prior art cathode is less than the overall resistivity of a similar ITO layer.

Regarding claims 4 and 6, the light is emitted through the cathode. (See figure 5).

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Regarding claims 7 and 8, the electron injecting layer is contiguous to the light emitting layer and has a work function that is less than the absolute value of the lowest unoccupied molecular orbital level of the contiguous portion. The organic layer further is composed of more than one layer.

Regarding claim 12, Seo discloses the alternative use of Silver instead of Aluminum for the thin metal film layer. (Paragraph 0175)

Regarding claim 13, Seo further discloses the use of a cathode including a 2 nm thick Cs layer where the total layer thickness is between 10-30 nm depending on the choice of the metal thin film layer and its transmittance.

Regarding claim 5, Seo in view of Suzuki discloses the device as claimed (See rejection of claim 1 above) but does not appear to suggest the inversion of the anode and cathode on the substrate. However the inverting of layers on the substrate in order to change the device from a top emitting to a bottom emitting device (and vice versa) is well understood in the art of organic EL devices. Further the inversion from a top emitting to a bottom emitting advantageously provides for the light to be emitted through the substrate thus leaving the anode of the device exposed and more easily accessible to the power supply and control wiring. Forming the substrate at the viewer's end of the device also allows for additional structural protection during use. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to invert the device layers, including the anode and cathode, in the device as disclosed by Seo in view of Suzuki in order to advantageously increase the accessible to the power supply and control wiring and to improve structural protection during use.

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Regarding claims 15 and 16, Suzuki further discloses (see figure 10) the use of three layers of red, blue, and green emittance in order to create white light as described in the rejection of claim 1 above. (Column 10 lines 1-20).

Claims 10, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seo et al. (US 2003/0062826 A1) in view of Suzuki et al. (US 6,447,934) and further in view of Haight et al. (US 5,714,838).

Regarding claims 10 and 17, Seo in view of Suzuki discloses the device as claimed (see rejection of claim 1 above) but does not appear to specify the use of Ca as the material for the electron injecting layers. However Haight, in the same field of endeavor, discloses the use of Ca for the electron injecting layer in order to advantageously increase the electron injecting efficiency. (Column 2 lines 10-34). Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the use of Ca for the electron injecting layer as taught by Haight into the device as disclosed by Seo in view of Suzuki in order to advantageously improve the electron injecting efficiency.

Regarding claim 18, Seo in view of Suzuki and further in view of Haight discloses the device as claimed (See rejection of claim 17 above) but does not appear to suggest the inversion of the anode and cathode on the substrate. However the inverting of layers on the substrate in order to change the device from a top emitting to a bottom emitting device (and vice versa) is well understood in the art of organic EL devices. Further the inversion from a top emitting to a bottom emitting advantageously provides for the light to be emitted through the substrate thus leaving the anode of the device exposed and more easily accessible to the power supply and

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control wiring. Forming the substrate at the viewer's end of the device also allows for additional structural protection during use. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to invert the device layers, including the anode and cathode, in the device as disclosed by Seo in view of Suzuki and further in view of Haight in order to advantageously increase the accessible to the power supply and control wiring and to improve structural protection during use.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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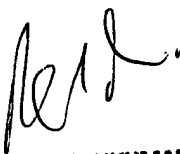
Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matt P Hodges whose telephone number is (571) 272-2454. The examiner can normally be reached on 7:30 AM to 4:00 PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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